WE CLAIM:

1. A magnetic resonance imaging or optical imaging prodrug contrast agent having a lower affinity for a tissue protein than a bioactivated form of the contrast agent.

2. The prodrug contrast agent according to claim 1 comprising:

a) an image-enhancing moiety (IEM);

b) a protein binding moiety (PBM); and

c) a modification site (MS).

3. The prodrug contrast agent according to claim 2, wherein the IEM comprises one member selected from the group consisting of organic molecules, metal ions, salts and chelates, clusters, particles, labeled peptides, labeled proteins, labeled polymers, labeled liposomes, organic dyes and inorganic dyes.

4. The optical imaging prodrug contrast agent according to claim 2, wherein the IEM comprises a physiologically compatible chelate comprising at least one cyclic or acyclic organic chelating agent complexed to one or more metal ions with atomic numbers 13, 21-34, 39-42, 44-50, or 57-83.

5. The prodrug contrast agent according to claim 2, wherein the IEM comprises a luminescent metal complex.

6. The prodrug contrast agent according to claim 2 wherein the IEM comprises an iron particle or metal chelate of high magnetic susceptibility.

7. The prodrug contrast agent according to claim 2, wherein the IEM comprises a pharmaceutically acceptable metal chelate comprising at least one organic chelating agent complexed to one or more paramagnetic metal ions with automatic numbers 21-29, 42, 44 or 57-83.

8. The prodrug contrast agent according to claim 7, wherein the paramagnetic metal ion is selected from the group consisting of Gd(III), Fe(III), Mn(II), Mn(III), Cr(III), Cu(II), Dy(III), Tb(III), Ho(III), Er(III) and Eu(III).

9. The prodrug contrast agent according to claim 8, wherein the paramagnetic metal ion is Gd(III).

10. The prodrug contrast agent according to claim 4 or 7, wherein the metal chelate has a formation constant of greater than about 10^{10} M^{-1}.

11. The prodrug contrast agent according to claim 10, wherein the metal chelate has a formation constant of greater than about 10^{15} M^{-1}.

12. The prodrug contrast agent according to claim 11, wherein the metal chelate has a formation constant of greater than about 10^{20} M^{-1}.

13. The prodrug contrast agent according to claim 9 wherein the chelating agent is selected from the group consisting of DTPA, DOTA, DTPA-BMA and HP-DO3A.

14. The prodrug contrast agent according to claim 2, wherein the PBM is selected from the group consisting of drugs, lipophilic and amphiphilic organic molecules, porphyrins, receptor ligands, steroids, lipids, hormones, peptides, proteins, oligonucleotides and antibodies.

15. The prodrug contrast agent according to claim 2 having a lower affinity for more than one tissue protein than a bioactivated form of the contract agent.

16. The prodrug contrast agent according to claim 2 having a lower affinity for a protein from plasma, interstitial space of a tissue, synovial fluid cerebral spinal fluid, inflammatory fluid, abcess fluid, or intracellular space than a bioactivated form of the contrast agent.

17. The prodrug contrast agent according to claim 16, having a lower affinity than a bioactivated form of the contrast agent for a protein selected from the group consisting of human serum albumin, fatty acid binding protein, glutathione-S-transferase, alpha 1-acid glycoprotein, lipoproteins, structural proteins of the extracellular matrix, amyloid, ceroid, and glycoproteins.

18. The prodrug contrast agent according to claim 17, wherein the protein is an alpha 1-acid glycoprotein.

19. The prodrug contrast agent according to claim 17 wherein the protein is selected from the group consisting of human serum albumin, fatty acid binding protein and glutathione-S-transferase.

20. The prodrug contrast agent according to claim 19, wherein the protein is human serum albumin.

21. The prodrug contrast agent according to claim 20, wherein the PBM of the bioactivated contrast agent has a log P contribution of from about to 2.0 to about 7.0.

22. The prodrug contrast agent according to claim 20, wherein the PBM has a log P contribution of at least 4.0.

23. The prodrug contrast agent according to claim 20, wherein the PBM has a log P contribution of at least 6.0.

24. The prodrug contrast agent according to claim 20, wherein at least about 10% of the bioactivated contrast agent binds to human serum albumin under physiologically relevant conditions.

25. The prodrug contrast agent according to claim 20, wherein at least about 50% of the

bioactivated contrast agent binds to human serum albumin under physiologically relevant conditions.

26. The prodrug contrast agent according to claim 20, wherein at least about 80% of the bioactivated contrast agent binds to human serum albumin under physiologically relevant conditions.

27. The prodrug contrast agent according to claim 20, wherein at least about 95% of the bioactivated contrast agent binds to human serum albumin under physiologically relevant conditions.

28. The prodrug contrast agent according to claim 20, wherein the prodrug binding affinity for human serum albumin is less than about 80% of the binding affinity of the bioactivated agent.

29. The prodrug contrast agent according to claim 20, wherein the prodrug binding affinity for human serum albumin is less than about 50% of the binding affinity of the bioactivated agent.

30. The prodrug contrast agent according to claim 20, wherein the prodrug binding affinity for HSA is less than about 40% of the binding affinity of the bioactivated agent.

31. The prodrug contrast agent according to claim 20, wherein the prodrug binding affinity for HSA is less than about 20% of the binding affinity of the bioactivated agent.

32. The prodrug contrast agent according to claim 20, wherein the prodrug binding affinity for HSA is less than about 10% of the binding affinity of the bioactivated agent.

33. The prodrug contrast agent according to claim 20, wherein the prodrug relaxivity (R_1) is 80% or less of the relaxivity (R_1) of the bioactivated agent.

34. The prodrug contrast agent according to claim 20, wherein the prodrug relaxivity (R_1) is 50% or less of the relaxivity (R_1) of the bioactivated agent.

35. The prodrug contrast agent according to claim 20, wherein the prodrug relaxivity (R_1) is 20% or less of the relaxivity (R_1) of the bioactivated agent.

36. The prodrug contrast agent according to claim 20, wherein the prodrug relaxivity (R_1) is 10% or less of the relaxivity(R_1) of the bioactivated agent.

37. The prodrug contrast agent according to claim 2, wherein a PBM comprises at least one aliphatic, alkoxy or alkylthio, alkylcarbonyl, alkylcarbonyloxy, aryl or heterocyclic group with 1 to 60 carbons and, optionally, one or more nitrogen, oxygen, sulfur, halogen, aliphatic, amide, ester, sulfonamide, acyl, sulfonate, phosphate, hydroxyl or organometallic substituents.

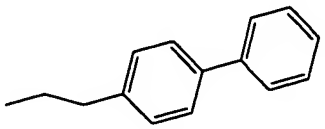
38. The prodrug contrast agent according to claim 37, wherein the PBM comprises at least one aryl ring.

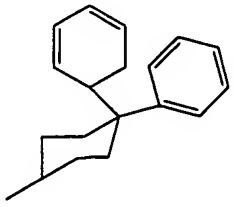
39. The prodrug contrast agent according to claim 38, when the PBM comprises at least two aryl rings.

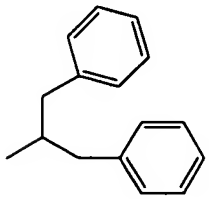
40. The prodrug contrast agent according to claim 37, comprising two PBMs.

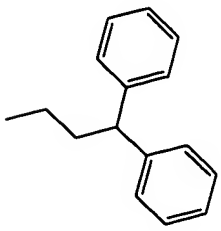
41. The prodrug contrast agent according to claim 40, wherein the PBMs each comprise at least one aryl ring.

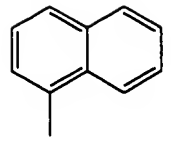
42. The prodrug compound according to claim 37, wherein the PBM comprises at least one structure selected from the group consisting of:

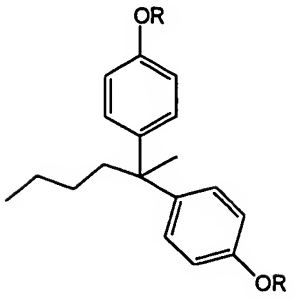
a)  ,

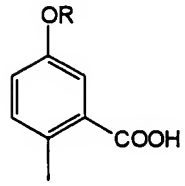
b)  ,

c)  ,

d)  .

e)  ,

f)  , and

g) 

wherein R comprises an aliphatic group and/or at least one aryl ring, or comprises a peptide containing hydrophobic amino acid residues and/or substituents with or without hydrophobic or hydrophilic termination groups.

43. The prodrug contract agent according to claim 2, wherein the MS is a bond capable of being altered in vivo by an enzyme.

44. The prodrug contrast agent according to claim 43, wherein said enzyme is selected from the group consisting of oxidoreductases, transferases, hydrolases, lyases, isomerases and ligases.

45. The prodrug contrast agent according to claim 43, wherein said enzyme is selected from the group consisting of metalloproteinases, proteinases,

serine proteases, phosphatases, phospholipases, esterases and sulfatases.

46. The prodrug contrast agent according to claim 43 wherein the MS is a phosphorus-oxygen bond capable of being hydrolyzed in vivo by a phosphatase enzyme.

47. The prodrug contrast agent according to claim 43 wherein the MS is an amide bond capable of being hydrolyzed in vivo by a metalloproteinase enzyme or a serine protease enzyme.

48. The prodrug contrast agent according to claim 2, having further comprising a masking moiety (MM).

49. The prodrug contrast agent according to claim 48, having a charge or hydrophobicity that is capable of being altered by bioactivation of the prodrug.

50. The prodrug contrast agent according to claim 48 wherein the MM comprises polyethyleneglycol.

51. The prodrug contrast agent according to claim 48, wherein the MM comprises a hydrophilic and/or charged group selected from the group consisting of hydroxyl, amine, ammonium, quanternary amine, amino acid, sulfoxide, phosphate, sulfate, carboxylate, carbohydrate, sugar and metal chelate.

52. The prodrug contrast agent according to claim 2 represented by the structure:

$$IEM - [\ (PBM)_m - [\ (MS)_n - (MM)_o\ ]_p\ ]q$$

wherein each of m, n, o, p and q are the same or different; q, n, m and p can be greater than or equal to one, but not zero; and o can be greater than or equal to zero.

53. The prodrug contrast agent according to claim 2 represented by the structure:

$$IEM - (PBM)_m$$
$$|$$
$$[(MS)_n$$
$$|$$
$$(MM)_o]_p$$

wherein each m, n, o, p and q are the same or different; q, n, m and p can be greater than or equal to one, but not zero; and o can be greater than or equal to zero.

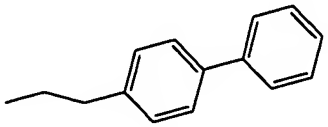
54. The prodrug contrast agent according to claim 2 represented by the structure:

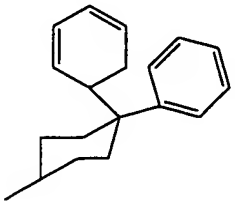
$$(3)\quad IEM - [\ (MS)_n - (MM)_o$$
$$|$$
$$(PBM)_m]_q$$

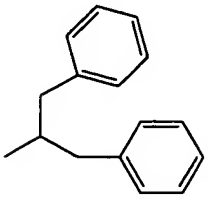
wherein each m, n, o, p and q are the same or different; q, n, m and p can be greater than or equal to one, but not zero; and o can be greater than or equal to zero.

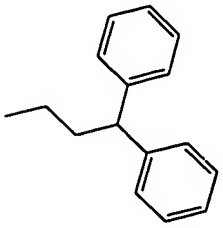
55. The prodrug contrast agent according to claim 1, wherein the IEM comprises a DTPA, DOTA, DTPA-BMA or HP-DO3A chelate of Gd^{3+};

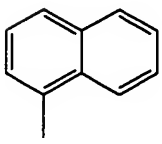
the PBM comprises at least one structure selected from the group consisting of the following structures:

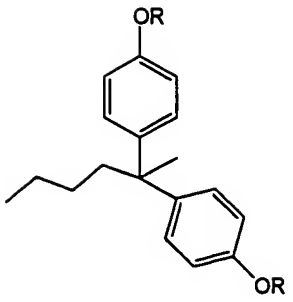
a)  ,

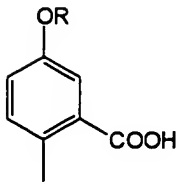
b)  .

c)  .

d)  .

e) 

f)  , and

g) 

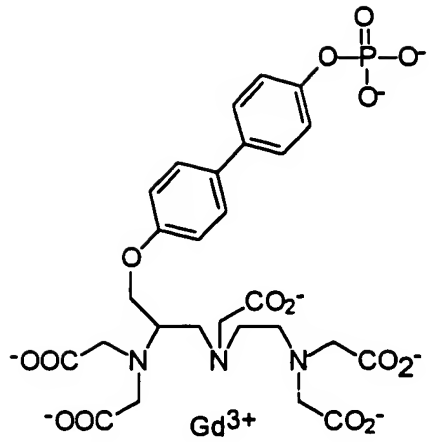
wherein R comprises an aliphatic group and/or at least one aryl ring, or comprises a peptide containing hydrophobic amino acid residues and/or substituents with or without hydrophobic or hydrophilic termination groups; and

the MS comprises a bond capable of being altered in vivo by a hydrolase enzyme.

56. The prodrug contrast agent of claim 55 wherein the MS is a phosphorus-oxygen bond capable of being hydrolyzed in vivo by a phosphatase enzyme.

57. The prodrug compound of claim 50 wherein the MS is an amide bond capable of being hydrolyzed in vivo by a metallproteinase enzyme or a serine protease enzyme.

58. A magnetic resonance imaging prodrug contrast agent represented by the following structure:



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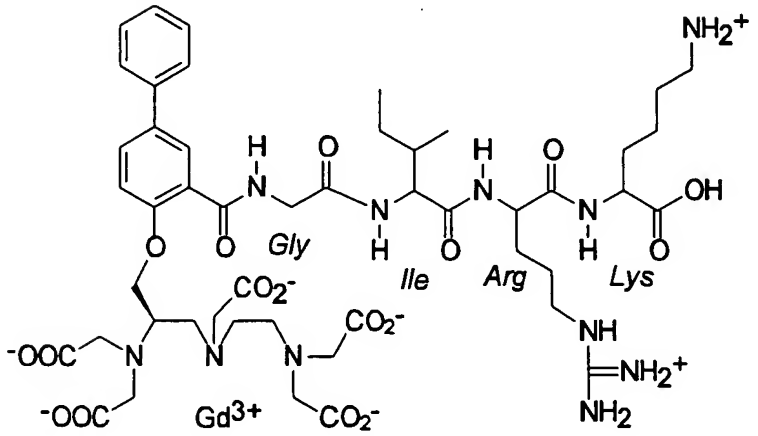
59. A magnetic resonance imaging prodrug contrast agent represented by the following structure:



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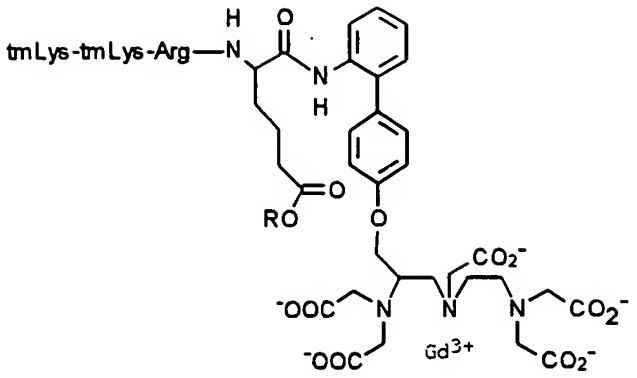
60. A magnetic resonance imaging prodrug contrast agent represented by the following structure:



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wherein R is an aliphatic or activated ester.

61. A pharmaceutical composition comprising a prodrug contrast agent according to claim 1, and a carrier, adjuvant or vehicle.

62. The pharmaceutical composition according to claim 61, further comprising a free organic ligand or a pharmaceutically acceptable salt thereof.

63. A method for MRI imaging comprising the step of administering a diagnostically effective amount of a prodrug contrast agent according to claim 7.

64. A method for ultraviolet/visible/ infrared light imaging comprising the step of administering a diagnostically effective amount of a prodrug contrast agent according to claim 4.

65. A method for MRI imaging comprising the step of administering a diagnostically effective amount of a prodrug contrast agent according to claim 6.

66. A method for delivering a contrast agent comprising the step of administering a prodrug contrast agent according to claim 1.